

عنوان مقاله:

.Root exposures to cadmium: morphological, physiological and embryological consequences in *Datura stramonium* L

محل انتشار:

بیست و یکمین کنگره ملی و نهمین کنگره بین المللی زیست شناسی ایران (سال: 1399)

تعداد صفحات اصل مقاله: 1

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خلاصه مقاله:

Cadmium (Cd) is regarded as one of the most toxic metals and environmental pollutants. The aim of the study was to investigate the effect of cadmium root treatments (0, 75, 150 and 225 mgkg⁻¹) on morphological, physiological and embryological characteristics of *Datura stramonium*. The results showed that BCF and TF increased from 0.19 and 0.2 in the control group to 0.71 and 1.12 in the experimental group of 225 mgkg⁻¹Cd, respectively. In the group treated with 225 mgkg⁻¹ Cd, fresh and dry weight of root, fresh and dry weight of shoot, shoot length, root length, leaf area, cell membrane stability index and relative water content of tissue decreased 50.89, 43.75, 52.57, 46.27, 10.14, 24.04, 55.41, 31.35 and 24.21 percent respectively. The photosynthetic pigments content and soluble carbohydrate content in the Cd-treated plants were decreased in comparison to the control ones. The total protein content in the treatment group with 225 mgkg⁻¹Cd was 6.7 times of the control group. The highest peroxidase and polyphenol oxidase activity was also determined in the group treated by 225 mgkg⁻¹Cd. The results showed that Cd can cause to some abnormalities during the developmental process of pollen grains and ovule. Under Cd treatment, fragility, vacuolization and size of pollen grains were increased in comparison with control ones. Decreasing in the bioavailability of pollens and degeneration of embryo sac cells were the result of Cd pollution. It was found that Cd is capable of inducing chromosomal aberrations. The results was also indicated that *D. stramonium* has the Cd-accumulation and phytoremediation potency. It seemed that *D. stramonium* was able to resist the damages caused by Cd toxicity, via altering some physiological parameters and changing the protein content.

کلمات کلیدی:

phytoremediation, morphological parameters, physiological parameters, pollen grains

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